$\rightarrow$ **It is responsibility of the DAQ ACE to take calibrations once per day.** Of course you won't interrupt data taking and will have to wait for "quiet time" for those calibrations that require so.

$\rightarrow$ **The ACE takes "online" calibrations:** the read-out electronics is calibrated, not the detector. Eg: charge injected in the read-out chips, or light flashed into phototubes.

$\rightarrow$ **There are two reasons why calibrations are taken:**

1. The obvious reason: calibrate! I.e. measure the response of the electronics to a given signal and use that for data.
2. To check the electronics is ok. The first check is done by ACEs right after the calibration. Later, experts will look at them.

→ **Official source: "Calibration procedures"** from the ACE web page.

→ **Latest news: Control Room whiteboard** including when last calibrations were taken, which ones need quiet time, etc.

→ **List of calibrations:**

1. Calorimeter QIE
2. Calorimeter LED
3. Calorimeter XEF
4. Plug Laser
5. Shower Max
6. CLC
7. COT
8. Silicon
9. Muon
10. TOF TAC
11. TOF QIE
12. BSC/Miniplug

→ **How to take each calibration:**

1. Locate instructions, these will guide you through the following steps
2. Preliminary settings when needed
3. Select Run Control configuration
4. Click on buttons
5. Check the calibration

Let us see highlights of these steps for some calibrations

→ **Preliminaries:**

1. Quiet time for: CAL QIE, CLC QIE, BSC, Plug Laser
2. LED/XEF: take only after Cal QIE calibration
3. HV off for CES/CPR/CCR in SMX calibration: click on arrow in HV summary PC
4. HV on for XEF: use PC on 1st floor following instructions
5. Plug Laser: turn on and off the laser and the HV as from instructions

→ Configuration:

1. If needed (otherwise skip): Start Run Control, select partition etc.
2. There are two main calibration types:
   "Generic": LED, XEF, COT, MUON, TOF TAC, Plug Laser
   and "QIE": CAL, SMX, CLC, TOF QIE, BSC, Roman P. **Important: when QIE, never click on** `calib_load`**!**
3. Select run configuration as from instructions
4. Edit configuration and remove crates if needed
5. Take two calibrations for:
   Silicon: DPS-on/off
   Plug Laser: the second with (`Myron mode ON - L1 early ON - Ignore BC ON`)

→ **Perform calibration:**

1. Just go through the "finite state machine"

→ **Check results - document**

1. Look if Data Base was written first. There is a link in the "Calibration procedures" web page.
2. Main tool: DBANA. You may be asked to:
   - Print and file plots in binder
   - Compare with reference plots
   - Print bad channel lists
3. Make entry in e-logbook
4. Send mail (plug laser) - Fill web forms (silicon) - Page experts (if something wrong)

→ **Checking calibrations:** remarks.

1. There are examples of problems found or clarified by looking at a calibration or that could have been found and were not because a calibration was not checked.
2. Is it a CO job? Maybe, but you should at least inform him to check the calibration.
3. Sometimes there is not enough time to do all calibrations and check them too. You can check them later, but do it.
4. If you see in the e-logbook that the previous shift performed calibrations and did not check them, do it (hoping you were not the previous shift).
5. Some checks may be automated: an experimental script is `qiecalcheck`, for Calorimeter QIE: if you like it, that may be extended to other checks.